Comprehensive Review of the Nebraska Safe Drinking Water Act Section 1425 Underground Injection Control (UIC) Program

Nebraska Oil & Gas Conservation Commission (NOGCC)

October 2015

*NOGCC initial responses are colored in red.
*Responses during program review interview are colored in blue.

A. Statutory Authorities and Regulatory Jurisdictions

1. What year did EPA grant primary authority to your agency for permitting and regulating Class II injection?
   1983

2. What is the state statutory authority upon which your UIC program is based?
   RSN 57-905 (7) states, "The commission shall have authority to promulgate and to enforce rules, regulations and orders to effectuate the purposes and the intent of sections 57-901 to 57-921."

Do these statutes or rules contain definitions for the following terms: injection; enhanced recovery; brine or salt water disposal; commercial disposal; well stimulation (eg. hydraulic fracturing); produced fluids; and underground source of drinking water or fresh water? If so, please provide copies of the definitions for those terms.

001 **FRESH WATER** means a source of water used for drinking water purposes, or water contained in an aquifer which contains less than ten thousand (10,000) parts per million total dissolved solids, unless the aquifer is exempted by the Director.

CLASSIFICATION OF UNDERGROUND INJECTION WELLS

001.01 Enhanced recovery injection well is a well which injects fluids to increase the recovery of oil and/or gas.

A commercial enhanced recovery facility includes single or multiple wells that are specifically engaged in the business of underground injection of brine generated by third party producers for a fee or compensation. In addition, the produced brine must originate off-site as a result of oil and gas production operations only, and must be transported to the facility by tank truck.

001.02 Disposal well is a well which injects for purposes other than enhanced recovery those fluids brought to the surface in connection with the production of oil and/or gas.

A commercial disposal facility includes single or multiple wells that are specifically engaged in the business of underground injection of brine generated by third party producers for a fee or compensation. In addition, the produced brine must originate off-site as a result of oil and gas production operations only, and must be transported to the facility by tank truck

002.01 Commencement of waterflooding and other enhanced recovery operations involving the introduction of extraneous forms of energy into any reservoir, including cycling or recycling operations and the extraction and separation of liquid hydrocarbons from natural gas in connection therewith is permitted only upon order of the Commission.

- Most water flooding is done with groundwater.

002.02 Underground disposal of salt water, brackish water or other water unfit for domestic, livestock, irrigation or other general uses is permitted only upon order of the Commission.

002.03 All injection wells must have sufficient surface casing run to reach a depth below the base of all water sources that are less than three thousand (3,000) parts per million total dissolved solids or water sources that are or could be reasonably utilized as domestic fresh water unless those sources are exempted. Casing shall be sufficiently cemented to fill the annulus to the top of the hole.

002.04 All injection wells shall be cased and the casing cemented in such a manner that damage will not be caused to oil and gas resources by any injection activity.

002.05 Authorization for injection may be conditioned upon the applicant taking action to protect fresh water as may be specified by the Commission in its order.

3. Does your statutory authority include the ability to promulgate new rules or modify existing ones? If so, please describe and cite the enabling authority or authorities.

Yes. RSN 57-905 (7) states, "The commission shall have authority to promulgate and to enforce rules, regulations and orders to effectuate the purposes and the intent of sections 57-901 to 57-921."

4. What changes have been made to the regulations since primacy was granted and how have those changes impacted the UIC program?

- Well stimulation annulus rules were added recently (2013 & 2014).

Special Request Item: *EPA requests that NOGCC provide a copy or link for all current state statutes, rules, regulations, policies, procedures, and orders which are applicable to the injection of Class II eligible wastes for disposal, enhanced recovery and hydrocarbon storage.*

http://www.nogcc.ne.gov/NOGCCrulesstatutesindex.aspx

B. Administration and Program Development

1. Please provide an agency organizational chart and identify UIC positions along with their roles and responsibilities.

   Within our organization, every individual spends a portion of their time working on our UIC program; however, only two individuals, the Deputy Director and UIC Administrative Assistant formally record their time to the program.

2. What training is required for new UIC staff and how do existing staff stay current on the UIC program?
   All inspectors have been sent to EPA's inspectors' training school, IOGCC inspector certification program and GWPC training programs i.e. well integrity, as scheduled.

3. How many Class II wells by operating status are in the NOGCC inventory at this time?

CountOfAPI_We	Well_Typ	WI_Status
410	EOR	AI
20	EOR	AX
1	EOR	JA
824	EOR	PA
74	EOR	SI
10	EOR	TA
126	SWD	AI
6	SWD	AX
76	SWD	PA
11	SWD	SI
2	SWD	TA

- Around 20 – 25 wells are permitted a year (both injection and production), but does fluctuate depending on the market. Down to one third of the wells approved of the wells approved this time last year. Twenty five percent of the NOGCC well count are injection wells.

4. Does NOGCC allow for the "land-spreading" of solid waste generated by injection well drilling operations? If so is this information maintained by NOGCC and available to the public?
   Yes, if water based fluids were used. Approval for land-spreading requires the written permission of land owner. Information is not on our website.
- Required to have an agreement with the property owner and company since they own the land and mineral rights.

5. Does NOGCC have any regulations which govern the retention by injection well owners/operators in Nebraska of records, forms, reports and other items that are required

by a permit? If so, what is the retention period that these records must be maintained and kept on file and available upon NOGCC request?
All records are retained both electronically and in paper forever.

- Information for disposal fluids require the point of source, volume etc. (not just required of commercial wells). Commercial disposal wells must have disposal fluid trucked in, not allowed to be brought in by pipe.

6. Does the NOGCC have any notification requirements regarding injection wells being sold or transferred to another company or individual(s)? If so, are there any time limits or constraints when this must be accomplished?
Must be approved in writing by the Director

- 008.01 Orders authorizing injection into enhanced recovery injection wells and disposal wells shall remain valid for the life of the well, unless revoked by the Commission for cause.

  008.02 An order granting underground injection may be modified, revoked and reissued, or terminated during its term for cause, after notice and hearing, upon the request of any interested person or at the Commission's initiative. All requests filed requesting review of any order authorizing underground injection shall be in writing and shall contain facts or reasons supporting such request.
- The legal definition of interested party is used by NOGCC, any party within the area of review (AoR).

008.03 Upon receipt of a request to modify or revoke an order authorizing underground injection, the Commission shall promptly set the matter for hearing and may revoke, modify and reissue said order if:

008.03A There is a substantial change of conditions in the enhanced recovery injection well or the disposal well operation, or there are substantial changes in the information originally furnished.

008.03B Information shows that the permitted operation will have adverse cumulative effects on the environment.

008.03C Information shows that the operation is not in accordance with the order authorizing the injection.

C. Well Operations

Permitting:

1. What information is required by NOGCC in an intent to drill application?

http://www.nogcc.ne.gov/Forms/NE_Form2_IntentToDrill.pdf

Unless altered, modified or changed for a particular pool or pools, upon hearing before the Commission, the following shall apply to the drilling of all wells:

012.01 When drilling where high pressures are likely to exist, the owner shall take all reasonable precautions for keeping the well under control at all times and shall provide at the time the well is started proper high pressure fittings and equipment. Under such conditions, the conductor string of casing must be cemented throughout its length, unless other procedure is authorized by the Director or his authorized agent, and all strings of casing must be securely anchored.

012.02 In areas where pressures and formations are unknown, sufficient surface casing shall be run to reach a depth below the base of formations generally contributing water supplies for domestic, agricultural and municipal use as well as water bearing formations reasonably expected to be utilized for domestic, agricultural and municipal use if not presently utilized. The amount of surface casing run shall be sufficient to prevent blowouts and uncontrolled flows at reasonable depths and of sufficient size to permit the use of an intermediate string or strings of casing where necessary to control deeper blowout or uncontrolled flow sources. Surface casing shall be set in a relatively impervious formation and shall be cemented by the plug or displacement or other approved method with sufficient cement to fill the annulus to the top of the hole except in cases where unusually long strings of surface casing are required and approval is secured from the Director or his authorized agent to use other adequate methods of cementation.

012.03 In wells drilled in areas where subsurface conditions are known through drilling experience, surface casing shall be set and cemented to the surface by the pump and plug or displacement or other approved methods at a depth sufficient to protect all domestic, agricultural or municipal water supplies and to insure against blowouts or uncontrolled flows.

012.04 Cement shall be allowed to stand under pressure until the cement has reached a compressive strength of five hundred (500) pounds per square inch before drilling the plug. The term "under pressure" as used herein, will be complied with if one float valve is used or if pressure is otherwise held. All cement and cement additives used shall have been tested in accordance with API RP 10B, dated 1974, "Recommended Practices for Testing Oil-Well Cements and Cement Additives," and the results reported to the Director prior to use.

012.05 In all proven areas, the use of blowout equipment shall be in accordance with the established practice in the area.

012.06 In areas where high pressures may be reasonably anticipated, all drilling wells shall be equipped with a master-gate or its equivalent, an adequate blowout preventer, together with choke and kill line or lines of the proper size and working pressure. The entire control equipment shall be in good working condition at all times.

012.07 If a well is deepened for the purpose of producing oil and gas from the lower stratum, such deepening to and completion in the lower stratum shall be conducted in such a manner as to protect all upper productive strata.

012.08 All wells shall be so drilled that the horizontal distance between the bottom of the hole and the location at the top of the hole shall be at all times at a practical minimum.

012.09 If and when it becomes necessary to run a production string, such production string shall be cemented by the pump and plug method.

012.10 By approved reasonable methods, the owner shall shut off and exclude all alien water from any oil or gas bearing stratum; and to determine the effectiveness of such operations, the owner shall make a casing test before suspending drilling operations or drilling into the oil or gas bearing stratum and completing the well.

012.11 Before commencing to drill, proper and adequate pits shall be constructed for the reception and confinement of mud and cuttings. Reserve pits used in the drilling and completion of oil and gas wells shall be designed and constructed to protect the surface and the waters of the state from pollution.

For all reserve pits the minimum criteria shall be as follows:

- Minimum of two (2) foot freeboard is required.
- All topsoil shall be stockpiled on or adjacent to the location and be used for reclamation after drilling operations have been completed when practical.
- Reserve pits shall not contain, at anytime, any non-exempt E&P waste.

The Commission may administratively approve field-wide or area-wide applications covering drilling reserve pit design and construction.

012.12 For those reserve pits located within one-half (1/2) mile of surface waters of the state, the operator shall meet the requirements set forth in Section 012.11. Additionally, an application filed with Form 2 shall include:

- Drilling location layout plan.
- Pit size.
- Type of mud program.
- Anticipated time pit will be in use.
- Scaled topographic map showing the surface drainage and distance to any lakes, rivers, streams or springs.

012.13 If salt based or oil based muds are used during the drilling program or if a salt section of sufficient thickness to affect the mud quality is anticipated, then the reserve pit design and construction shall meet the requirements of this rule and an application shall be submitted along with Form 2 for approval.

Minimum design criteria shall be as follows:

- Steel working tanks will be required on the drilling rig circulating system.
- Reserve pits shall be designed to accommodate those fluids while protecting the lands and waters of the state.

- Soil mixture liners, recompacted clay liners and manufactured liners must be compatible with the wastes contained.
- The application shall include the type and specifications of the liner to be used. All liners constructed of manufactured materials must meet or exceed the specifications set forth by the Commission.
- Synthetic liners must be installed over smooth fill sub-grade which is free of pockets, loose rocks, or other materials which could damage the liner. Sand, sifted dirt, or bentonite are suggested as cushion material if needed.
- The application shall contain a plan for disposal of liquids and solids.
- Liner edges must be secured to prevent wind damage.

The Commission may authorize alternative methods upon review of the application.

012.14 All pits shall be backfilled within one year after completion of drilling operations.

The disposal of drilling fluids, stimulation fluids or any oil field waste into any well shall be prohibited unless approved by the Director prior to disposal.

Within thirty (30) days after cessation of drilling operations, non-exempt E&P waste materials including but not limited to crankcase oil shall be contained in non-leaking containers and disposed of in accordance with DEQ or any applicable federal regulations.

In those areas where acceptable, and upon application and approval, land farming or land spreading of fresh water based drilling mud may be allowed on the lease.

012.15 After the reserve pits have been properly backfilled, a biodegradable mulch may be required if soil erosion or the establishment of vegetation is determined to be a problem by the Director.

001 LOCATION OF WELLS

013.01 No well drilled for oil or gas in or adjacent to presently producing pools shall be drilled at a location within a legal subdivision which varies substantially from the established locations within legal subdivisions of a majority of the wells in the pool or which will result in a spacing unit for such wells substantially different from that attributable to the established wells in the pool.

013.02 All wells drilled to sources of supply at estimated depths in excess of two thousand five hundred (2500) feet for which no spacing pattern has been established by existing wells shall be drilled on 40-acre legal subdivisions or equivalent lots and not less than five hundred (500) feet from the boundaries of said legal subdivisions. The Director may administratively approve an exception to the requirements hereof where topographical conditions, irregular sections or geological conditions make the drilling of a well at the regular location impractical, provided that the owners, as defined in

the Act, within a distance of five hundred (500) feet from the proposed well file with the Director a waiver of objection, or consent in writing, agreeing to said exception; Provided further, that a well drilled under the terms of such waiver, or consent, shall be subject to such production limitations as may be necessary to protect correlative rights.

013.03 All wells drilled to sources of supply at estimated depths of two thousand five hundred (2500) feet or less for which no spacing pattern has been established by existing wells shall not be drilled closer than three hundred (300) feet from the boundaries of a 40-acre legal subdivision or equivalent lot.

013.04 Upon the receipt, by the Commission, of an application from any person requesting the establishment of special field rules for spacing of wells within a designated area, all or a portion of which is not then subject to special field rules, or upon decision by the Commission to call a hearing for the establishment of such special field rules, application for permits to drill within such area will be held in abeyance by the Commission until such time as the matter has been fully heard and determined; and no further permits to drill within the area designated in the application shall be issued until such determination has been made. Notwithstanding the provisions above, a permit shall be issued if an owner demonstrates to the satisfaction of the Director that a loss of his leasehold will result or that significant drainage may occur if approval of drilling is withheld. However, in event a permit is issued, the permit to drill shall authorize a location for the proposed well which conforms as nearly as practicable to the pattern proposed in each application or petition then on file with the Commission for spacing within the designated area.

013.05 The foregoing spacing restrictions shall not apply to approved unit operations or authorized secondary recovery projects or to any field where the Commission, after notice and hearing, ordered a different spacing pattern in special field rules.

002 DIRECTIONAL DRILLING

When the intent is to direct the bottom of the hole away from vertical, other than whipstocking necessitated by hole conditions, and the spacing pattern is not altered thereby, notice of intention to do so shall be filed with the Director and approval obtained before beginning controlled directional drilling operations. Such notice shall state clearly the depth, exact surface location of the well bore, proposed direction deviation and proposed horizontal distance between the proposed bottom of the hole and the surface location. If approval is obtained, the owner shall file with the Commission within thirty (30) days after the completion of the work an accurate and complete copy of the directional survey made.

- Horizontal well permit AoR is not often done in Nebraska. Horizontal wells in the zone of endangering influence (ZOEI) can have permit conditions worked into the permit to not allow the fluids to flow up-pipe.

003 RE-DRILLING OR DRILLING DEEPER

When a well is re-drilled or drilled deeper by the original operator, the operator shall advise the Commission of his intentions by filing Form 4 and stating thereon the proposed work to be done and the anticipated results of the work.

If the re-drilling or drilling deeper is to be done by anyone other than the original operator, he shall file Form 2 and the seventy-five dollar ($75) permit fee and state on the form that this well is to be re-drilled or drilled deeper.

Upon completion of the work Form 5 shall be filed if the well is an oil or gas producer, injection or disposal well, or shut-in with casing in the hole. If the well is a dry hole, Form 6 shall be filed. Copies of any logs and tests made should accompany these forms.

2. Does NOGCC have any public notification requirements regarding the intention to drill? If so, please elaborate.
   No, all permits are posted on our website

3. What information is required by NOGCC in an injection well permit application?
   The required elements of a complete application can be found in Chapter 4 Section 004 of the Rules and Regulations.

004.02A	A plat map showing all wells, including dry, abandoned or drilling wells shall be properly located and designated on said plat. In the case of an operation conducted subject to a unit agreement, the area affected shall be the area subject to such agreement, or that area within one-half (1/2) mile of each injection well, whichever is the greater distance.
004.02B	The names and addresses of each person owning a fee, leasehold, mineral or royalty interest within one-half (1/2) mile of each injection well or within the area required to be shown on the plat, whichever is the greater.
004.02C	A full description of the particular operation for which approval is sought.
004.02D	The names and addresses of the operator or operators of the project.
004.02E	If the wells have been drilled, a copy of each completion report and any available electric or radioactivity logs.
004.02F	A schematic diagram of each well showing:
004.02F1	The total depth or plug-back of the well.
004.02F2	The depth of the injection or disposal interval.
004.02F3	The geological name of the injection or disposal zone.
004.02F4	A geologic description of the injection or disposal zone including the location and extent of any known faults or fracture systems.

004.02F5 The depths of the tops and bottoms of the casing and cement to be used in the well.

004.02F6 The size and specifications of the casing and tubing, and the setting depth and type of packer, if used.

004.02G Information showing that injection into the proposed zone will not initiate vertical fractures into or through the overlying strata which could enable the injected fluids or formation fluids to enter any fresh water strata.

004.02H Information that no unplugged wells exist which will allow the migration of the injected fluids or formation fluids to enter any fresh water strata.

004.02I Information regarding the fracture pressures of the injection zone and the overlying strata, including the source of such information.

004.02J Proposed operating data:

004.02J1 Maximum designed or proposed daily injection rates and injection pressures.

004.02J2 The source of any fluids to be injected.

004.02J3 Analysis of a representative sample of the fluids to be injected.

004.02J4 Analysis of fresh water from two or more freshwater wells within one mile of the proposed injection well showing the location of the wells and the dates the samples were collected, or a statement why samples were not submitted.

004.02J5 Geological name of the lowest freshwater zone, if known, and the depth to the base of the freshwater zone.

004.02J6 The vertical distance separating top of the injection zone and the base of the lowest freshwater strata.

- For unitization orders geologic, participants and nearby wells are looked at which may be injecting to help with EOR to ensure everything is equitable, people may be involuntarily included into unitization.

4. Does the state allow for area (multi well) permits? If so, what are the differences in the type of information that is required in the application?
   NOGCC accepts applications for multiple UIC wells in with a single submission, i.e. for forming of a secondary recovery unit, however all UIC well information is well specific.
   - UIC order process requires every well to be individually permitted, but do allow for area permits to be established (each well is individually reviewed to ensure no underground sources of drinking water (USDW) endangerment may occur).

5. Who makes a determination if a permit application is complete?
   The Engineering/Geologic staff (Stan, or Bill) screen the applications for completeness based on the requirements stated in Chapter 4 Section 004 of the Rules and Regulations.
   - If a notification period passes without any written objections NOGCC has the ability to have the case approved (around 90% permits are done this way).

6. What procedure is followed when an application is found to be incomplete?
   The missing required information or documents are flagged on a checklist containing the requirements as stated in Chapter 4 Section 004 of the Rules and Regulations. The checklist is then returned, along with the application, to the Administrative assistant who contacts the Operator and requests the missing information

7. Once an application has been determined to be complete, what is the process for development of a draft permit?
   Once an application is determined to be complete, it is returned to the Administrative Secretary to prepare the legal notice for publication, and a case number is assigned. When the notification period is complete the application is reviewed by the Hearing Examiner and an order/permit is written. If objections have been received than the application/case must be heard by the full Commission, an order/permit is than drafted and signed by the commissioners.

8. What are the well siting restrictions for Class II injection wells in Nebraska and are there regulations and/or restrictions governing the distance at which wells may be placed from drinking water wells, public drinking water sources, surface waters, residential/commercial buildings, geologic hazards or any other environmentally sensitive areas? If so, please specify.
   None specific to NOGCC rules, we have added requirements though orders/permits.

9. Are there groundwater protection areas and/or sensitive groundwater areas within the state of Nebraska? If so, please identify them and describe how this information is used during the UIC permitting process.
   GIS coverages of groundwater protection areas are obtained from NDEQ.

   Surface casing depths are reviewed by staff using geophysical methods to ensure their depth extends below any usable drinking water.

   Additional operating requirements maybe placed on a well that is in a sensitive area by the Director. These have included: Increased time frequency of MIT, Quarterly field inspection by NOGCC staff.

10. Is a site visit ever conducted in advance of a permit determination? If so, what is looked at during the visit?
    No, generally not

11. What is the state's process for public participation (i.e., public notification requirements, public hearing process) and how are any comments received during that process addressed?

005 NOTICE OF HEARING

005.01 Upon filing of an application, the Commission shall issue notice thereof, as provided by the Act and these regulations. Said application shall be set for public hearing at such time and place as the Commission may fix.

005.02 In addition to the notice required by law, notice of the application and the time and place of hearing shall be given by the applicant by certified mail or by delivering a copy of the notice to each person owning a fee, leasehold, mineral or royalty interest within the project area or within one-half (1/2) mile of the injection well, whichever is the greater. A copy of such notice shall be filed with the Commission, and the applicant shall certify that notice by certified mail or by delivery to each person has been accomplished at least fifteen (15) days prior to the hearing or give sufficient reason for being unable to do so.

005.03 In the event no person required to be notified, or the Commission itself files a written objection to the application within ten (10) days of the date of the notice, the application shall be granted; but if any person or the Commission itself files written objection within ten (10) days of the notice, then a hearing shall be held.

- Public notice occurs after legal notice in the paper, the owner/operator is required to send a return receipt within a certain radius to citizens with contact information by mail and paper. For horizontal well areas an additional spacing around the outside of the area in a grid pattern must be used to notify the residents within the area. The area looked at for those affected is ½ mile (interested parties). If a notification period passes without any written objections NOGCC has the ability to have the case approved (around 90% permits are done this way). If there are objections then the case has to be shown before the commission by interested parties (in the AoR) or by the commission. All public comments (when feasible) which are received get a response confirming the receipt of the objections. The objector can bring an attorney and experts, then the commission has to make a decision. People with objections are weighed in experience and education, the commission will listen to everyone attending but they won't be sworn in as experts. So not everyone talking is sworn in as an expert. The transcript consists of everything occurring during the hearing, not just the verbal testimonies. It is a quasi-judicial system for public notices and hearings. Must have two of the three commissioners present for the hearings, decisions are based on evidence and testimony and it's either approved or not approved, which can go up to the judicial system.

12. How is the owner/operator notified if an application has been approved or denied, and if denied is there an appeal process?

Usually a phone call or an email followed by a signed order from either the Hearing Examiner or the Commissioners.
A commission decision can be appeal to District Court.

13. How does NOGCC determine whether a permit should be modified, revoked and reissued, or terminated?
    Done on a case by case as below:

    002.01 Authorization for injection may be conditioned upon the applicant taking action to protect fresh water as may be specified by the Commission in its order.

    002.02 Upon receipt of a request to modify or revoke an order authorizing underground injection, the Commission shall promptly set the matter for hearing and may revoke, modify and reissue said order if:

    a. There is a substantial change of conditions in the enhanced recovery injection well or the disposal well operation, or there are substantial changes in the information originally furnished.

    b. Information shows that the permitted operation will have adverse cumulative effects on the environment.

    Information shows that the operation is not in accordance with the order authorizing the injection.

14. If an owner/operator wants to amend an existing injection permit, is the process treated the same or differently from that of a new permit application?
    Depends on the nature of the amendment if remark different than new application and permit
    - If wells need a modification NOGCC requires a sundry notice explaining how they need to vary from the permit (major or minor). If a major modification is required a new notification is required

15. Does NOGCC differentiate between major and minor permit modifications? If so, what is considered a major permit modification and is the process to modify the permit different?
    A major permit modification would require re-notice of the application
    - A major modification would be something such as a missing target formation or requesting a new formation for injection. A minor modification would be in a separate area in the same formation. There is less than a handful of major modifications.

16. Are the permit application or operating requirements for Class II commercial salt water disposal wells in Nebraska different from those for Class II non-commercial salt water disposal wells? If so how do they differ?

    a. All commercial facility sites must be physically secured at all times. The Director will determine if a site is secure. The Commission recommends that sites be secured by either of the following:

        i. Complete enclosure of all wells, tanks/pits and wellhead assemblies within suitable fencing; and/or

        ii. All gates and other entry points shall be locked when the facility is unattended; and/or

        iii. Provide tamper-proof seals or locks for the "master" valve on each well; and/or

iv. Install locking caps on all valves and connections on holding tanks and headers.

v. All commercial wells must have annual pressure tests to establish the mechanical integrity of the casing, tubing and packer. Casing pressure tests shall be conducted under the supervision of the Director.

- There are no differences in coming into the program as a commercial or non-commercial injection well with the exception of the MIT requirement. Commercial disposal wells require a MIT once every year, all other wells require one MIT every five years. Commercial facilities are also encouraged to have some sort of site security. An annulus pressure test at 300 psi at the surface is performed for annulus stability, tested initially then tested every five years. An MIT does not indicate a specific percent loss, NOGCC states either it holds its pressure and passes or fails.

17. Does NOGCC require the permit applicant for a Class II injection well to provide an analysis of the produced waters that will be injected at the proposed well? If so what is required in the analysis
    Yes, the anions and cations that compose the TDS
- Require pre-testing of drinking water and injection water for compatibility. Wells require a representative sample of injectate as part of the application process.

18. Are there restrictions on the types of fluids that can be used in Class II enhanced recovery operations? If so, what are those restrictions?
    Would use the applicable UIC guidance and the "brown" EPA RCRA guidance.

Special Request Item: *If available, EPA requests a copy of flow chart of the state's injection well permit process.*

Area of Review:

1. What method(s) does NOGCC employ to determine an Area or Review (AoR) a fixed radius and/or a zone of endangering influence?
   At a minimum, NOGCC uses a fixed radius of one-half mile. In some cases, NOGCC may use a Zoei calculation (Theis Equation) if questions regarding wells in the AOR cannot be determined. For an AOR in a new area, well files are pulled and physically reviewed. A paper plat showing the wells, their surface casing depth, operating status and amount of cement used for plugging is generated.

2. If the permit request is for an area permit, how is the AoR determined?
   The area within the geographical boundaries of the permit request

3. Where in the current State UIC regulations are there provisions that address "corrective action" for other wells found in an AOR?
   Other permit conditions may be placed on the order/permit for wells in the AOR

4. How are wells which are in need of corrective action but outside of the permit applicant's control dealt with or does that stop the permit from being issued?
   Though permit/UIC order conditions

- The area is looked at for other wells in the AoR which can impact permitting conditions.

Well Construction and USDW Protection:

1. What are the requirements for how new Class II wells are to be constructed?
    a. Each enhanced recovery injection well or disposal well shall be completed, equipped, operated and maintained in a manner that will prevent pollution of fresh water or damage to sources of oil and/or gas and will confine injected fluids to the formation or zones approved.
    b. Injection of any substance shall be through adequate casing or casing and tubing. Annular injection is prohibited. Above ground extensions shall be installed in each annulus in the well and each injection tubing or casing. Such extensions shall be fitted with a cut-off valve and a one-fourth (1/4) inch female fitting to provide for pressure monitoring by attaching a gauge having a one-fourth (1/4) inch male fitting.
    c.
2. How does NOGCC determine the depth of the lowermost USDW and how is that information used when setting the surface casing?

    The depth of the USDW is either determined from the evaluation of either the openhole logs in the well, or offset wells, or from available geologic maps which were prepared under the supervision of the Nebraska Geological Survey.

3. How does NOGCC ensure that a new well is designed so that USDWs are effectively isolated and protected?

    002.06 All injection wells must have sufficient surface casing run to reach a depth below the base of all water sources that are less than three thousand (3,000) parts per million total dissolved solids or water sources that are or could be reasonably utilized as domestic fresh water unless those sources are exempted. Casing shall be sufficiently cemented to fill the annulus to the top of the hole.

4. Does NOGCC maintain maps or other records showing the extent vertically and horizontally of USDWs in the state? If so, is this information updated as additional information becomes available and is this information readily available to permit applicants?
    Yes, via our web-site. Most operators consult with Commission staff prior to permitting a new well to determine the adequate depth of surface casing for the principle aquifer

5. Does NOGCC require wells converting from production wells to injection wells to have the casing strings which go through any USDWs cemented in place?
    Yes, we would require remedial cementing

Well Completion:

1. How does NOGCC handle modifications or changes in the construction from those provided in the application?

Must be submitted using a Form 4 "Sundry Notice" and approved by NOGCC

2. What level of detail or information is required from the owner/operator after completion of an injection well?
   http://www.nogcc.ne.gov/Forms/NE_Form5_WellComplete.pdf

3. How long does a well owner/operator have to provide a well completion or re-completion report of a Class II injection well or disposal well back to the state? Is this timeframe a specified by regulation?

   WELL COMPLETION OR RE-COMPLETION REPORT

   Within thirty (30) days after completion or re-completion of an oil or gas producing well, injection or disposal well or a well temporarily abandoned with casing in the hole, the owner or operator shall transmit to the Director the well completion or re-completion report, Form 5, in duplicate for wells drilled on Patented or Federal Lands, and in triplicate for wells drilled on State Lands. Upon written request geological information will be kept confidential for twelve (12) months after the filing thereof unless written permission to release the information at an earlier date is obtained from the operator. An order authorizing an injection well will expire and become null and void if the authorized well or wells are not completed or converted to injection within one (1)year from the date of the order

4. Does the state ever witness well completion activities?
   Yes

Injection Pressures:

1. Are there provisions in the State's UIC regulations which:

   a. Address maximum injection volumes and/or pressures necessary to assure that fractures are not initiated in the confining zone; and,

   Injection pressure are based on using a fracture gradient of .7psi/ft.

   Information showing that injection into the proposed zone will not initiate vertical fractures into or through the overlying strata which could enable the injected fluids or formation fluids to enter any fresh water strata.

- Nebraska does not permit volumes, a well is permitted for an approved injection pressure.

   b. Stipulate that injected fluids and formation fluids are not allowed to migrate or be displaced into any underground source of drinking water (USDW)?

004.02A	Information that no unplugged wells exist which will allow the migration of the injected fluids or formation fluids to enter any fresh water strata.
004.02B	Information regarding the fracture pressures of the injection zone and the overlying strata, including the source of such information.

2. Please provide EPA a copy of these state provisions.

3. Are owners/operators required to notify the NOGCC of problems associated with over-pressuring or lack of adequate confinement for Class II wells?
   Mechanical failures or downhole problems which indicate an enhanced recovery injection well or disposal well is not, or may not be, directing or containing the injected fluid into the permitted or authorized injection zone is cause to shut-in the well. If said condition may endanger fresh water sources, the operator shall orally notify the Director within twenty-four (24) hours. Written notice of the failure shall be submitted to the Director within five (5) days of the occurrence together with a plan for repairing and testing the well. Results of the repair and testing shall be reported to the Director and approved before further injection is commenced

4. For salt water disposal wells and enhanced recovery wells, what is the NOGCC requirement regarding the frequency of monitoring and recording of actual injection pressure and annulus pressure?
   a. The operator shall monitor and record actual injection pressure and each annulus pressure at least once each week and report such monitoring monthly.

5. How frequently are these pressures reported to NOGCC and how long is the monitoring report maintained by the owner/operator and NOGCC??
   Most Form 11 "Injection report" are filed electronically monthly

Confinement of Injected Fluids:

1. Do state regulations specifically prohibit fracturing of confining units as a consequence of stimulation or exceeding the permitted maximum injection volumes and/or pressures in the injection zone (i.e., the formation(s) where injection is taking place)?

Special Request Item: *EPA requests that NOGCC provide examples of access to files containing plans for testing, drilling, and construction as part of the permit application.*

D. Financial Assurance

1. Please explain in detail the various mechanisms that are allowed to be used by the owner/operator in order to establish financial assurance. For each financial assurance mechanism, please indicate the following:

2. How the dollar amounts are established and if there are limits on what those amounts are; and

3. What kind of periodic review occurs to ensure that the level of financial assurance is still adequate?

- NOGCC does not require periodic reviews to ensure financial assurance is still adequate.

4. What is the timing for when a well owner/operator must have a financial assurance mechanism in place?

5. Is the well owner/operator required to adjust the plugging and abandonment cost estimate annually to adjust for inflation? If not annually, then at what frequency are they required to adjust these cost figures?

    - The well owner/operator is not required to adjust cost estimates to adjust for inflation.

6. Is the State of Nebraska or NOGCC named as "the payee" on all financial assurance mechanisms in the event of default or cancellation by the owner/operator? If not, which mechanisms list Nebraska as the payee and which mechanisms do not? Please provide EPA examples of these mechanisms.

7. Have there been instances in Nebraska since 2000 where the financial guarantees posted by the owner/operator were insufficient and state funds were required to be expended in order to accomplish well plugging?

    Prior to commencement of dirt work preceding drilling, or assuming operation of any well, the person, firm or corporation commencing said drilling or operation shall make, or cause to be made, and file with the Commission a good and sufficient bond in the sum of not less than five thousand dollars ($5,000) for each well or hole and payable to the State of Nebraska, conditioned for the performance of the duty to comply with all the provisions of the laws of the State of Nebraska and the rules, regulations and orders of the Commission. Said bond shall remain in force and effect until plugging of said well or hole is approved by the Director or his authorized deputy, a new bond is filed by a successor in interest or the bond is released by the Director. It is provided, however, that any owner in lieu of such bond may file with the Director a good and sufficient blanket bond in the principal sum of not less than twenty-five thousand dollars ($100,000) covering all wells or holes drilling or to be drilled in the State of Nebraska by the principal in said bond; and upon acceptance and approval by the Director of such blanket bond, said bond shall be considered as compliance with the foregoing provisions requiring an individual well or hole bond.

    Any person required to file a surety bond pursuant to this rule may post cash or certificate of deposit in the amount required subject to the following conditions:

    - If a person posts cash, it may be in the form of a cashier's check, certified check or legal tender of the United States of America delivered to the Commission.

    A certificate of deposit shall comply with the following:

    - The certificate of deposit shall be in the name of the Nebraska Oil and Gas Conservation Commission and only the signature of the Commission's authorized representative shall be on the withdrawal card as the authorized signature to withdraw the deposit.

- The certificate of deposit shall be in a bank or financial institution insured by the Federal Deposit Insurance Corporation and located in the State of Nebraska.
- The Commission may reject any certificate of deposit, when, combined with other certificates of deposit on that bank or financial institution, exceeds the limits of Federal Deposit Insurance Corporation insurance coverage.
- The certificate of deposit shall be in the custody of the Commission.
- The certificate of deposit shall be automatically renewable.
- Interest earned on the certificate of deposit is the property of the person who provided the money for it. The certificate of deposit and the money it represents is the property of the Commission until released by the Director.

E. Well Conversions (e.g. from injection to production & production to injection):

1. What steps are required by NOGCC for an owner/operator to perform a well conversion?
   A complete application must be filed for NOGCC review and approval
- If an owner/operator wants to convert a production well to injection they would be required to remedially cement to prevent aquifer movement and protect USDW supplies, involves a review of the request and field observation, sometimes requires a cement bond log and requires a public notice. The process of converting a well from production to injection would be a permit condition for them to comply with.

2. Does NOGCC have financial responsibility requirements for the owner/operator when a well is to be converted? If so, please explain what NOGCC requires.
   Yes, must be bonded before application is filed
- New wells which have never been permitted or converted wells: Needs a bond for $10,000 for a single well or $100,000 for multiple wells

3. How many well conversions has the NOGCC identified in 2014 and how does NOGCC track these conversions?
   All complete applications are assigned a case number and tracked through the permitting process.

F. Drilling Fluids/Muds:

1. For Class II wells, what are the major drilling fluid/mud types used in Nebraska?
   Fresh water systems for all wells drilled without a salt section, salt saturated for loactions with a salt section.
- Fresh water drilling mud is used unless drilling through a saline formation, then saline drilling mud is used to ensure fluids are inert. If oil/salt drilling mud is used then surface casing is required to be below the Chadron.

2. What are the specific additives that are used in drilling muds and fluids in the state?

Waste Disposal:

1. What is the estimated volume of total brine production in Nebraska in 2014 and what is the average water to oil ratio?
   Brine production = 58,748,365 bbls; Ratio = 20.7 bw/bo

2. Process waste water typically contains acids, various oils, alkalis, heavy metals, radionuclides, biocides, lubricants, corrosion inhibitors, glycols, amines, untreatable emulsions and other compounds. This process wastewater is derived from well development, production, and maintenance.

The disposal of drilling fluids, stimulation fluids or any oil field waste into any well shall be prohibited unless approved by the Director prior to disposal.

Within thirty (30) days after cessation of drilling operations, non-exempt E&P waste materials including but not limited to crankcase oil shall be contained in non-leaking containers and disposed of in accordance with DEQ or any applicable federal regulations.

In those areas where acceptable, and upon application and approval, land farming or land spreading of fresh water based drilling mud may be allowed on the lease with the written permission obtained from the landowner and submitted to the Director.

Is there anything in the NOGCC regulations or state statutes regarding the analytical sampling of process waste water for waste characterization and disposal?

Waste water is general injected use a Class II well, solid waste is as follows:

The Commission shall have final authority to determine if remediation has achieved a cleanup level of less than one (1) percent by weight total petroleum hydrocarbons. Cleanup shall be completed as soon as technically feasible.

Removal of Free Oil - To prevent waste and to minimize the depth of oil penetration, all free oil must be removed immediately for reclamation.

Excavation - All soil containing over one (1) percent by weight total petroleum hydrocarbons must be remediated or disposed of at an authorized disposal site.

Prevention of Stormwater Contamination - To prevent stormwater contamination soil excavated from the spill site

containing over five (5) percent by weight total petroleum hydrocarbons must be:

- Mixed with clean soil to a mixture of less than five (5) percent, or
- Removed to an authorized disposal site, or
- Contained on secure location for future remediation.

The operator may select any technically sound method for remediation of soil.

- Is the NOGCC aware if any operators are reusing and/or recycling their drilling wastes? If so, what percentages of operators in the NOGCC Class II universe are reusing/recycling?
  Yes, depending on the drilling program many operators recycle drill muds, and water.

- Does the NOGCC encourage operators to reuse and recycle? If so, how

- Does the NOGCC require a copy of shipping manifest anytime waste products are being disposed or conveyed offsite?

  022.16A Every person that transports water produced in association with the production of oil or gas shall possess a run ticket or equivalent documents containing the following:

  - 022.16A1 The name and address of the transporter.
  - 022.16A2 The name of the operator of the lease of origin.
  - 022.16A3 The location of the lease tank battery by section, township, range and county.
  - 022.16A4 The location of the destination by section, township, range and county.
  - 022.16A5 The date and time the fluids were loaded for transportation and unloaded at the destination.
  - 022.16A6 The estimated volume of fluids, or the opening and closing tank gauges or meter readings.
  - 022.16A7 The signature of the driver.

  022.16B One copy of the documentation shall be left at the facility from which the water was loaded for transportation.

  022.16C One copy of the documentation shall be carried in the vehicle during transportation and shall be produced for examination and inspection by any agent of the Commission or any authorized law officer upon request.

022.16D All persons that store, possess, or dispose of water produced in association with the production of oil or gas shall retain a record reflecting a complete inventory, including detail of the acceptance and disposition of the fluids for a period of at least five (5) years.

- What is the percentage of Class II wells in Nebraska that are being flared and are not being captured?
  0%

3. Do any local ordinances apply to E&P wastes in Nebraska? If so, please provide examples.
   No

4. Are there any statutory or regulatory provisions in Nebraska requiring the segregation of E&P and hazardous wastes?
   Within thirty (30) days after cessation of drilling operations, non-exempt E&P waste materials including but not limited to crankcase oil shall be contained in non-leaking containers and disposed of in accordance with DEQ or any applicable federal regulations.

5. Does NOGCC encourage source reduction, recycling, etc.? If so, how is the conveyed to all owner/operators of oil & gas activities in the state of Nebraska?
   - NOGCC does encourage reduction and recycling. However most businesses tend to do this on their own as a cost saving measure.

6. Does the E&P waste program allow for the disposal of drilling fluids and muds in non-industrial landfills and if so, how is this tracked and monitored within Nebraska? Is there a paper trail i.e. manifests, invoices, hardcopy sampling data, etc. and where are these documents maintained if at all?
   The disposal of drilling fluids, stimulation fluids or any oil field waste into any well shall be prohibited unless approved by the Director prior to disposal.

7. Are naturally occurring radioactive materials (NORM) tracked from each oil & gas field and if so, how is it tracked?
   No
- NORMs are low enough that they are never an issue, so no regulations are in place to address these.

G. Well Work-Overs:

1. What information is required from an owner/operator in advance of a planned well work-over and what information are they required to provide following completion?
   Notice must be given to the Director or his authorized deputy and approval obtained in advance of the time when the owner or operator expects to re-complete or abandon a well with the casing in the hole or to change previously

approved plans. Within thirty (30) days after re-completion, abandonment, or change of plans, a detailed report of the work done and the results obtained shall be submitted on Form 5 or Form 6, whichever is appropriate.

- Work overs are approved by the NOGCC, on injection wells the owner/operator will notify NOGCC of work overs. Once the work over is complete NOGCC requires a new MIT be conducted before operation.

2. How far in advance of a planned workover is the well owner/operator required to notify the state?
   For approval usually one week.

3. What are the estimated volumes (barrels), and the types of materials that typically comprise work-over, treatment and completion fluids?
   High variable according the type of job being done

4. How are these well work-over fluids disposed of? If not injected into a Class II well, how is the disposal tracked and verified to ensure that these wastes meet RCRA waste disposal requirements?
   Most are captured in temporary tanks and injected. NOGCC would not have jurisdiction on non-E&P waste as non-E&P waste must handle as for the NDEQ or other appropriate rules require.

5. How is deck drainage from the production site handled/disposed of?
   As above

6. What is the typical volume in barrels of deck drainage that is generated from a Class II well?

7. Does the state ever witness well work-over activities?
   Yes

Well Stimulation/Hydraulic Fracturing Activities:

1. What information is required from an owner/operator in advance of a planned well stimulation/hydraulic fracturing operation and what information are they required to provide following completion.

   Prior to the initiation of fracture stimulation, the operator must evaluate the well. If the operator proposes stimulation through production casing or through intermediate casing, the casing must be tested to the maximum anticipated treating pressure. If the casing fails the pressure test, it must be repaired or the operator must use a temporary casing/tubing fracturing string.

   If the operator proposes fracturing through a temporary casing/tubing string it must be stung into a liner or run on a packer set not less than one hundred (100) feet below the cement top of the production or intermediate casing and must be tested to not less than maximum anticipated treating pressure.

2. How far in advance of a planned well stimulation/hydraulic fracturing operation is the well owner/operator required to notify the state?

   Well completions which include hydraulic fracturing, acidizing, or other chemical stimulations done to complete a well are considered permitted under the drilling permit for that well

3. How many active Class II wells in the NOGCC inventory have under gone well stimulation/hydraulic fracturing operations?
   We do track this stat. But likely less than ten

4. Has NOGCC reviewed the EPA Diesel guidance? Has this guidance changed and/or affected the way you are implementing the NOGCC program?
   Yes, we would tell an operator they are very strongly discouraged from using any of the listed CAS numbers that are defined as "diesel" in a Frac job.

- Diesel guidance: No diesel is used in Nebraska, water based fluids are used due to their cheap cost. Diesel use is strongly discouraged (there is no reason in Nebraska to use diesel).

5. For hydraulic fracturing operations, how long does the casing/tubing pressure have to be held to be considered successful and what is the maximum pressure loss that is allowed?

042.03	Casing/tubing pressure test will be considered successful if the pressure applied has been held for ten (10) minutes with no more than a ten percent pressure loss.
042.04	Maximum treating pressure shall not exceed the test pressure determined above.
042.05	The surface casing valve must remain open while hydraulic fracturing operations are in progress. The annular space between the fracturing string and production casing must be monitored and may be pressurized to a pressure not to exceed the pressure rating of the lowest rated component that would be exposed to pressure should the fracturing string fail.

6. Does NOGCC require that owner/operators post on FracFocus all chemical constituents used in the fracturing process? If so, how long after the hydraulic fracturing operation has been completed does it typically take for this information to be posted and is there a time limit required under regulation or statue?

   Within sixty (60) days of the hydraulic fracture stimulation is performed, the operator shall post on the FracFocus Chemical Disclosure Registry (FracFocus.org) all the elements made viewable by the FracFocus web

- There is a specific requirement to use FracFocus within 60 days of the fracing job. New FracFocus is being used as they are required disclose everything used (but not what they are used for) confidential chemicals are not allowed anymore.

7. If not, does NOGCC request that owner/operators voluntarily post the chemical products used in their fracturing process online on FracFocus? If so, has this been successful and how long after the hydraulic fracturing operation has been completed does it typically take for this information to be posted?

8. What has been the level of interest displayed by the public regarding hydraulic fracturing within Nebraska? Has national media attention within the last 24 months or so had any bearing within Nebraska?

   Yes

H. Temporarily Abandoned and Permanently Abandoned Wells:

1. How much time must pass before NOGCC can or will designate a Class II injection well as temporarily abandoned?

Whenever operations cease for a period of sixty (60) days on any well, the operator shall give notice to the Commission of the change to inactive status

2. What are the requirements for a well in temporarily abandoned status?

040.01 If it is deemed necessary to prevent migration of oil, gas, water or other substances from the formation or horizon in which it originally occurred, the well shall be plugged or repaired. If the operations on any such inactive well are not resumed within a period of one (1) year after the notice has been given, the operator of the well shall plug and abandon the well in the manner prescribed by the Director. However, upon application prior to the expiration of the one (1) year period, and for good cause shown, the Director may extend the period for one (1) year, provided that the static fluid level is established and maintained at least one hundred fifty (150) feet below the lowest fresh water zone, or the casing is pressure tested to at least three hundred (300) pounds per square inch as measured at surface to prove mechanical integrity.

040.02 Application for inactive well status must be submitted on a Form 4 and contain the following information:

- The type of well.
- The bottom hole assembly.
- Pressures as measured by gauge for:
  - Tubing.
  - Production casing annulus.
  - Surface casing annulus.
- Static fluid level as measured from ground level.
  - Method used to determine static fluid level.

- Date data was obtained.

- Information stating if any formations with reservoir pressures high enough to initiate flow into the lowermost freshwater aquifer exist.

3. Is there a time limit for how long a well can remain in temporarily abandoned status? If so, what actions are required by the state to be taken by the owner/operator once that time limit is reached?

   040.01 An additional one (1) year extension(s) may be granted in the same manner.

4. Does the state differentiate between temporarily abandoned and permanently abandoned wells? If so how, is that distinction made?

   AN INACTIVE WELL is classified as SHUT-IN when the completion interval is open to the tubing or to the casing. An inactive well is classified as TEMPORARILY A BANDONED when the completion interval is isolated

- After a well is shut in the owner/operator have to report on Form 4 the static fluid level, a static shot is used for this. Annually reported, or MIT is allowed to prove it is not endangering USDWs. On producing wells the same thing is required and information electronically submitted, no required time limit is used before a well is considered abandoned (of the inactive wells 56% production is from water floods). If maintaining integrity there is no reason to close the well, it is all tracked digitally to generate reports.

5. What are the circumstance under which NOGCC can or will designate a Class II injection well as permanently abandoned?
   When a Form 6 Plugging Report is reviewed and signed

6. In addition to receiving a plugging record from the operator, are there any other means used by NOGCC to confirm that a permanently abandoned well was plugged?
   Location must be released by inspector

7. Currently, are there any cases of wells still needing to be plugged after they have been determined to be permanently abandoned? If so, how many?

I. Plugging and Abandonment:

- GPS coordinates are recorded for each well location. When a well is plugged and abandoned the well is cut about four to five feet below surface and welded shut. GPS is obtained by the vendor and verified by NOGCC (which is the coordinates used). Digital information for these wells is available to any party.

1. Please explain the various financial responsibility instruments or methods implemented in Nebraska to assure plugging of Class II wells?
   All wells require bonding in addition to that:

FEE FOR INACTIVE WELL
A yearly fee will be collected for each well that is inactive for two or more consecutive years. The operator will submit a fee for each well requested for inactive status. The fee structure is as follows:

Inactive Period, Year(s)	Fee
0 to 2	$ 0/Year
2 or more	$200/Year

The funds shall be used at the discretion of the Commission and the collection of fees may be reduced to five dollars ($5.00) per well at the discretion of the Director if previously collected funds prove sufficient to carry out the purposes of the Well Plugging and Abandonment Trust Fund.

- Fees go to the plugging and abandonment fund which isn't accessible except to use for plugging. $100 fee, field inspector gets 24 hour notice to have NOGCC view plugging, then a form 6 is submitted and put into the digital system and shown on the website.

2. In addition to receiving a plugging record from the operator, is there any other means used by NOGCC to confirm that an abandoned well was plugged?
   Physical inspection

3. Do NOGCC inspectors ever conduct a well visit to confirm if a well has been plugged or witness well plugging? If so what percentage of wells plugged are ever visited or have the plugging witnessed?
   To be released from a bond the well must be inspected by NOGCC staff.
- Before the plugging and abandonment bond is released a NOGCC inspector is required to physically go to the site and verify the site has been restored, and then the tag will be changed (colored tags are associated with different well status. P&A is blue, dry hole is yellow etc.). Very detailed maps showing information is retained.

4. How many abandoned wells has the NOGCC identified in 2014 and have been added to the inventory?

   a. Of the wells identified in 2014 as being abandoned, how many of these wells were historically permitted wells from the NOGCC?

   b. Of these historically permitted wells, does the NOGCC attempt to identify and/or locate the owner/operator for compensation? If so, how is this done?

5. How many wells has NOGCC plugged in to date in 2014?

J. Seismicity:

- There were two counties with significant earthquakes, one was an earthquake swarm ending in 1979, along with micro-quakes in the Nemaha uplift.

1. In light of recent media attention focused on induced seismicity, are there state statutes or other rules or policies which address potential induced seismicity in Nebraska? If not, has the NOGCC discussed if there is a need for with entities such as USGS, NIOGA, NDEQ, etc.?

   Some discussions with NE Geologic Survey, other state agencies, operating companies

- If induced seismicity were to become a concern NOGCC would coordinate with Nebraska Geological Survey and USGS. However there has been no apparent induced seismicity in the state. No steps are currently in writing at the movement

2. What protective actions is NOGCC taking to minimize the likelihood of any induced seismic events as the result of Class II well activities?

   NOGCC participants in the induced seismicity workgroup though State's First, we have also reviewed the EPA Technical Workgroup's excellent document regarding this topic

- NOGCC had a Landsat done for structures throughout the state to identify features.

3. Does NOGCC require owner/operators to perform a comprehensive review of existing geologic data to determine if there are known faulted areas within the AoR for a proposed injection well in the state and a prohibition on locating new Class II disposal wells within these areas?

   No

4. Are there currently any known wells within Nebraska that have been drilled into the Precambrian basement rock? If there are Class II wells drilled into the Precambrian, does NOGCC see the need to require the plugging with cement of these wells and a prohibition of injection in this same formation?

   Many wells drilled to Precambrian; however this has not been an issue.

5. Does NOGCC require a complete suite of geophysical logs (including, at a minimum, gamma ray, compensated density-neutron, and resistivity logs) to be run on newly drilled Class II disposal wells? If so, are these completed logs, with analytical interpretation, currently submitted to the NOGCC? If not currently required, has NOGCC given any thought on making this a requirement?

   All All wells drilled for oil and/or gas shall be adequately logged with appropriate mechanical, electrical, or radiation survey devices unless excepted by the Director. If adverse down hole conditions exist which makes the running of adequate survey devices impractical or hazardous, or in the case of open hole completions, twin wells, or other good cause shown, the Director may waive such required survey upon request by the operator.

   Logs shall be submitted as one unmarked paper copy, one digital PDF or TIFF (Tagged Image File Format) or digital LAS, or a format approved by the Director of the mechanical, electrical, or radiation survey log, clearly indicating the position of the shoe of the surface casing and including the entire logged

interval below the shoe of the surface casing, shall be submitted to the office of the Director within thirty (30) days after such log is run. If an extension of thirty (30) days is needed for filing survey logs, the Director may grant such extension for good cause shown.
hall be submitted as one unmarked paper copy, one digital PDF or TIFF (Tagged

6. Does NOGCC require or evaluate the need for the following measures pertaining to the help mitigate the potential for induced seismicity in Nebraska:

No necessary at this time

- If an earthquake were to occur NOGCC would go to their state website and locate any wells which may be contributing to the potential earthquake. Volumes in Nebraska are much smaller than states which are experiencing induced seismicity. Appropriate steps would be taken to investigate the earthquake. No steps are currently in writing at the moment.

a. Submission, at time of permit application, of any available information concerning the existence of known geological faults within a specified distance of the proposed well location, and submission of a plan for monitoring any seismic activity that may occur?

b. Having the permit applicant conduct a geophysical survey in areas where there is sparse subsurface geologic information?

c. Measurement or calculation of original downhole reservoir pressure prior to initial injection?

d. Having the permit applicant conduct step-rate injection tests to establish formation parting pressure and better establish maximum injection rates?

e. Installation of a continuous pressure monitoring system?

f. Installation of an automatic shut-off system set to operate if the fluid injection pressure exceeds the permitted maximum level?

g. Installation of an electronic data recording system or manifest system for purposes of tracking all fluids brought by a brine transporter for injection?

K. MITs and Inspections:

1. How does NOGCC track an operator's compliance with the applicable 5-year Mechanical Integrity Test (MIT)?

NOGCC tracks MIT schedules using its data base RBDMS. Data base queries are unitized to track all current, future and past MITs

- MITs are currently tracked in the NOGCC database to help for scheduling when wells are due for MIT. NOGCC witnesses 100% of all MIT. NOGCC currently has two full time field staff, along with two part time field staff. Notification is sent out to the

owner/operators and around four to five days' notice is typically provided to NOGCC (no specific time limit to number of days).

2. Are there any penalties assessed to owner/operators who are not within the applicable 5-year MIT?
   Can be

3. Are well owner/operators required to notify the NOGCC of a down-hole failure, or notify the NOGCC regarding conditions which may endanger the subsurface environment or the public? If so, how soon must the injection well owner/operator notify the state?

   After well failure NOGCC inspectors conduct an on-site inspection to verify the well is no longer being operated

   007.04 Mechanical failures or downhole problems which indicate an enhanced recovery injection well or disposal well is not, or may not be, directing or containing the injected fluid into the permitted or authorized injection zone is cause to shut-in the well. If said condition may endanger fresh water sources, the operator shall orally notify the Director within twenty-four (24) hours. Written notice of the failure shall be submitted to the Director within five (5) days of the occurrence together with a plan for repairing and testing the well. Results of the repair and testing shall be reported to the Director and approved before further injection is commenced.

   - Well failures require immediate well shut in, the owner/operator needs to go fix the well and a new MIT needs to be viewed. Ideally scheduled Monday through Friday, but can be adjusted if needed. Notification of failure verbally within a day and in writing or e-mail within seven days, this is typically verbal and e-mail. When notified initially/verbally the owner/operator is told to shut in the well immediately, then a more descriptive explanation is provided and reviewed, then fixed, and MIT witnessed. Failures are logged, annular MIT failures are not considered significant non-compliance, the time to fix it depends on the type of failure (if thought to endanger USDW's it is 90 days, if not then 180 days is required). A failure rises to SNC when they are not addressing the problem or there is a threat to an USDW, if yes then the well is shut in.

4. When the NOGCC is performing an inspection, what are all of the elements that NOGCC is looking at during the inspection?
   NOGCC inspectors assess all aspects of exploration, production, and injection cycle from cradle to grave. Field activities include: Verification of well location using GPS, verification of casing and cementing, monitoring of injection well annulus for positive or negative pressures, reading of pressure gauges, inspection of pits, steel working tanks, blow out preventers, open and cased hole logging, disposal of liquids and solids including completion fluids, spill responses, spill remediation, surface production and storage tanks, heater treaters, gun barrels, flow lines, dikes, and final restoration. NOGCC inspectors have the authority to sample all production and injection fluids.

5. Does the NOGCC inspector have the authority to sample production and injection fluids, tank contents, and take note of any other conditions that could threaten public health and the environment? If so, does NOGCC input the data into a database?

Yes

The Director and his authorized deputies shall have the right at all reasonable times to go upon and inspect any oil or gas properties and wells for the purpose of making any investigation or tests to ascertain whether the provisions of the statutes or these rules or any special field rules are being complied with, and shall report any violation thereof to the Commission.

All owners or operators shall permit the Director or authorized deputy, at his risk, in the absence of negligence on the part of the owner, to come upon any lease, property or well operated or controlled by them, and to inspect the record and operation of such wells and to have access at all times to any and all records of wells; provided, that information so obtained shall be kept confidential, unless the owner gives written permission to release such information, and shall be reported only to the Commission or its authorized deputies.

- NOGCC has the ability to require more frequent MIT but don't typically require it of permits, would need to provide form 5 once done.

Special Request Item: *EPA requests that NOGCC provide their latest guidelines for conducting mechanical integrity tests and copies of a Class II inspection report.*

L. Compliance and Enforcement:

Enforcement:

- If contamination is accused an investigator with NDEQ/EPA will look into it. A show cause hearing for the company to explain how it was not their fault is done. If it is determined there was contamination the company has to fix the problem for those affected.

1. What are the most common types of UIC violations that are subject to a Notice of violation (NOV) and follow-up enforcement action by NOGCC? What is NOGCC's process for initiating an enforcement action?

- Operators without mechanical integrity or exceeding psi are considered to be in non-compliance, these are brought to the attention of the NOGCC UIC Directors attention and it would be investigated and a notice of violation action would occur. First the problem is attempted to be fixed verbally, if this does not work then a notice of violation is issued and proceeds that way ultimately leading to a fine/repair if a notice of violation does not work. Additionally NOGCC has the ability to pull the owner/operators ability to sell oil/gas. Any fines/fees that are accrued are put into a cash fund which is only set by allocation.

2. How many and what, if any, ongoing enforcement actions are be handled through the Attorney General's office?

    a. If so, what situations would prompt such an action?

3. Where a responsible party cannot be located, does Nebraska have an Oil and Gas Remedial Fund in place to plug wells?
   New in 2014

   > The funds shall be used at the discretion of the Commission and the collection of fees may be reduced to five dollars ($5.00) per well at the discretion of the Director if previously collected funds prove sufficient to carry out the purposes of the Well Plugging and Abandonment Trust Fund.

    a. If so, how much did NOGCC allocate for this fund in 2013 and 2014?

    b. How is the fund supported?
       As above

    c. Is there a means in place for prioritizing wells for plugging?
       Yes

    d. Is NOGCC able to exercise authority over old wells existing before State law and regulations were passed?
       Yes

3. Has NOGCC levied financial penalties against owner/operators within the last five years? If so, what was the dollar value of the penalties by year and what were the violations that caused the financial penalties?

   The largest was $ $15,914.00 calculated for improper disposal of both produced water and except E&P wastes

   Special Request Item: *Please provide the EPA review team access to files containing administrative orders, consent agreements, civil/criminal referrals issued to UIC facilities within the past 5 years.*

   Compliance:

1. Besides on-site inspections, what other means does NOGCC employ to encourage, promote, and ensure compliance with UIC requirements?
   Mailings, email reminders and phone calls are regulatory reminders done by Administrative Assistant

2. How or in what manner do Oil and Gas Advisory meetings factor in to the State's overall compliance process?
   NA

3. Are inspections entered into a database system? If so which databases does NOGCC use and how often is the data updated? Please provide EPA a printout of one such inspection that was entered into the NOGCC inspection database.
   - Field inspections are done using an NOGCC developed application which runs on a tablet. Once inspections are done the forms, pictures and any related documents are uploaded to the NOGCC Risk Based Data Management System (RBDMS) on a daily basis.

M. Reporting:

1. What are NOGCC's reporting requirements for Class II wells? As below

2. What is the retention time for records that are required to be kept at or near a well site but not reported to the state?
   NA

3. What is the required amount of time that an owner/operator is to contact the NOGCC and report any spills, leaks or releases of oil and/or produced water?

   For each spill exceeding twenty (20) barrels of produced water, in which the water spilled exceeds ten thousand (10,000) parts per million total dissolved solids, or a spill exceeding two hundred (200) barrels of produced water, in which the water spilled contains less than 10,000 parts per million total dissolved solids, the operator must submit on a Form 4 a report to the Commission which shall give the following information:

   - A detailed description of the disposal or remediation method used.
   - The estimated date of completion of the site cleanup.
   - Area, maximum depth and volume in cubic yards of soil affected by produced water.
   - A statement signed by the operator stating that all affected soils have been treated and the surface landowner has been notified.

   a. Does the NOGCC require a written report and if so, how many days after the release and what is the minimum information that is required in this report?
   Yes, as above

N. Electronic Data Systems:

1. Does NOGCC maintain an electronic data system to track information on wells and operators in Nebraska along with other related information? If so, what is the name of the system and what is the extent of the information that it tracks?
   Risk Based Data Management System (RBDMS) is the comprehensive data management system

2. How and who enters new information and/or updated well information into this system?
   All staff

3. How soon typically is the information added?
   Daily

4. Are there other entities who have access rights for entering information into the system?
   All staff

5. Does the system at this time allow for the inputting of directional information on horizontal wells, i.e. how many legs from the well pad, which direction and/or how many degrees, depth, etc.?
   Yes

6. Is the information contained in electronic data system available to the public and if so, how?
   Yes, via our data mining system

7. What progress or problems is NOGCC having in the data entry area?

8. Is NOGCC working on flowing data from its electronic data system into the EPA UIC National Data System and if so, what problems have they encountered?
   Do you really what me to answer this?

O. Communication/Coordination:

1. How does NOGCC facilitate communication with NDEQ or other local, state, federal, or Non-Governmental Organizations?
   Mostly at national conferences: GWPC, IOGCC etc.

P. Resources:

1. Does NOGCC foresee in the near future problems in meeting their PAMs/7520 Goals and Projections?
   No

2. Are current funding levels for staff adequate for full UIC program implementation?
   More and more state funds are necessary

3. How many field inspectors total does the NOGCC employ and are they all located at the NOGCC office located in Sydney?
   Two inspectors. One located in McCook

Q. Topics for discussion during the site visit:

1. Potential Class VI wells/CO2 injection/sequestration activities in Nebraska
2. Porosity storage of natural gas
3. Uranium mining and deep disposal of waste water from processing operations